Mathematics - Grade 10

1. Find positive integer solutions to the equation $\frac{x}{3} + \frac{14}{y} = 3$.

2. A positive two digit integer is called „good number" if it is equal to four times of the sum of its digits. Find all „good numbers".

3. If a, b, c are positive real numbers and $a + b + c = 1$, then

$\left(\frac{1}{a} - 1\right)\left(\frac{1}{b} - 1\right)\left(\frac{1}{c} - 1\right) \geq 8$. Proof its.

4. Solve the equation $\sqrt{x^2 - 6x + 9} + \sqrt{x^2 + 8x + 16} = 7$.

5. Parallelogram$ABCD$ is given. The bisectors of $\angle A$ and $\angle D$ meet at E on the side BC. Find the angle AED.